

VERSIONS AND STATES WITHIN A SINGLE DATABASE

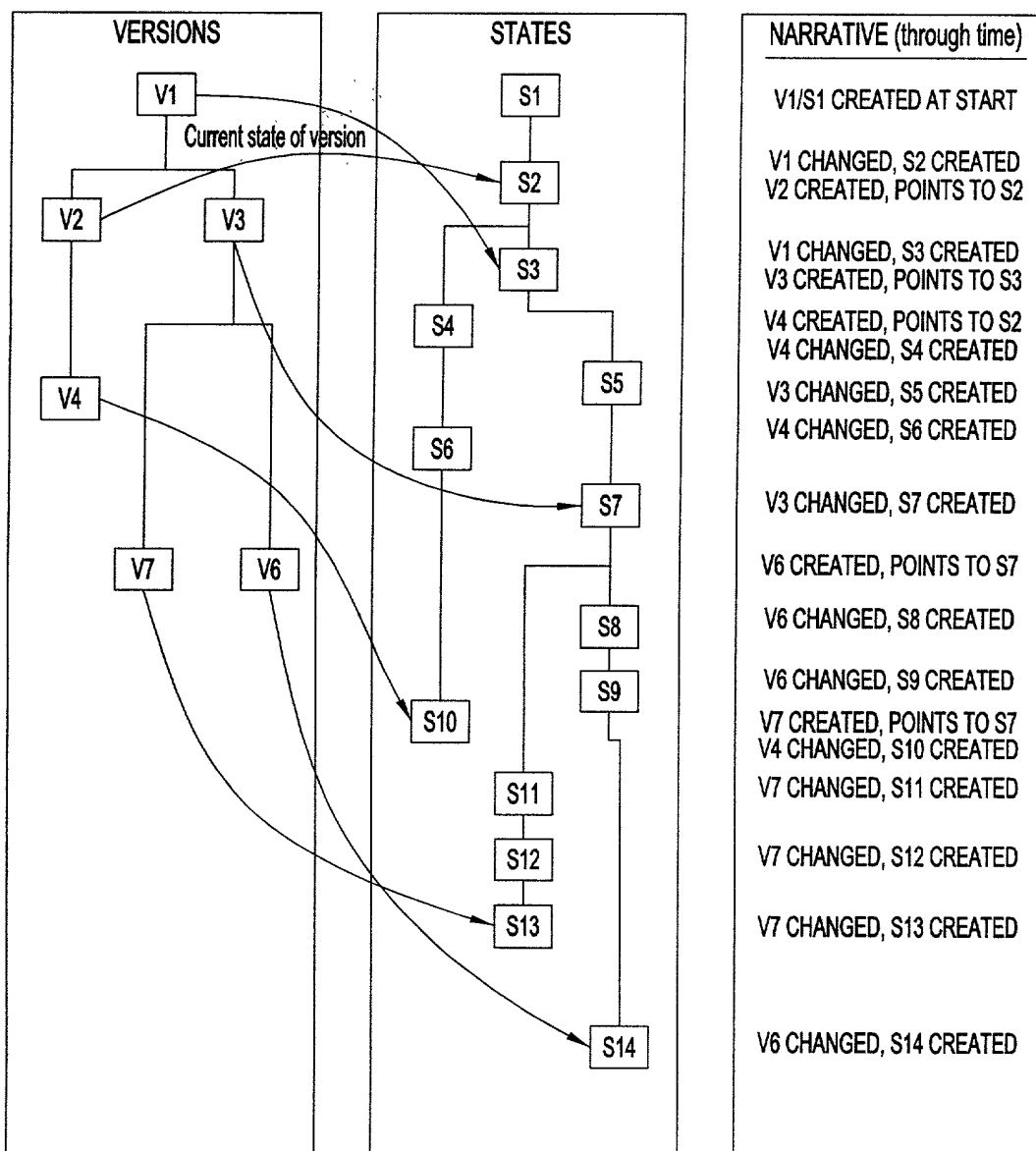
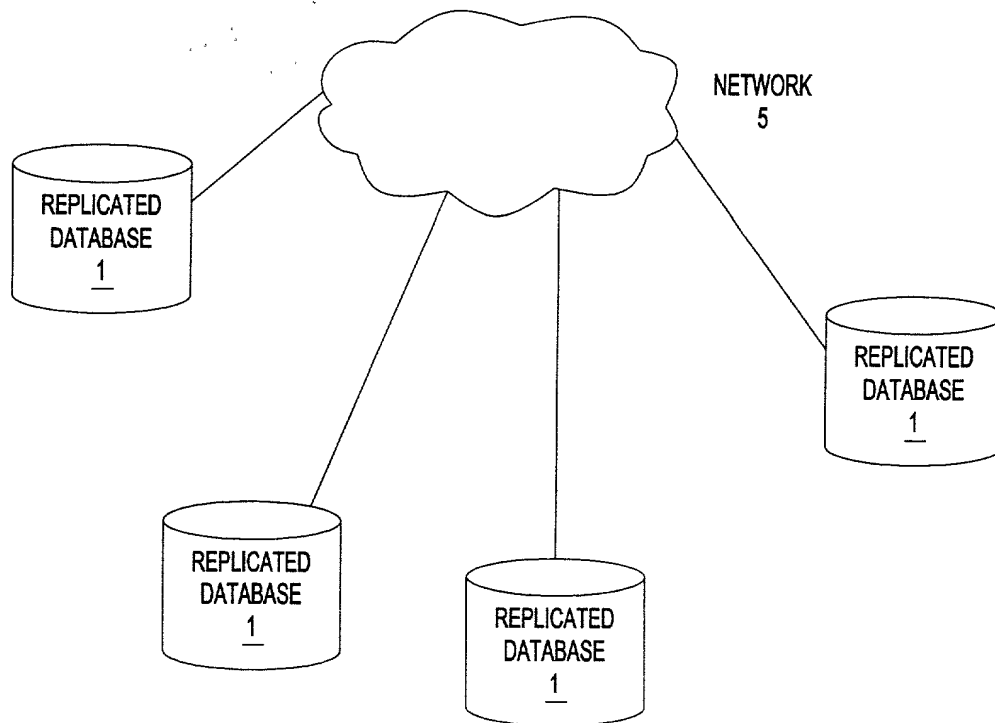


FIG. 1

*FIG. 2*

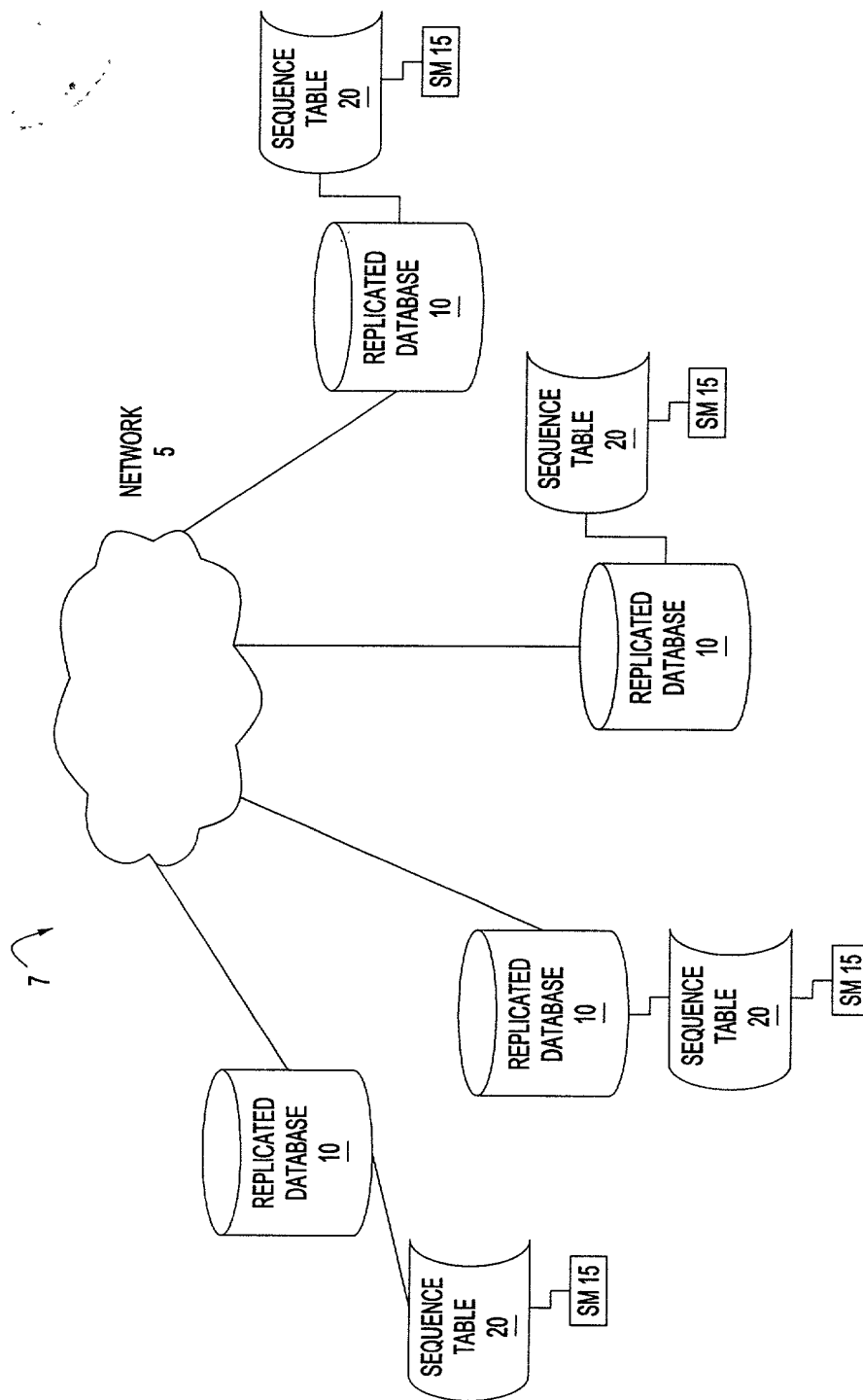


FIG. 3

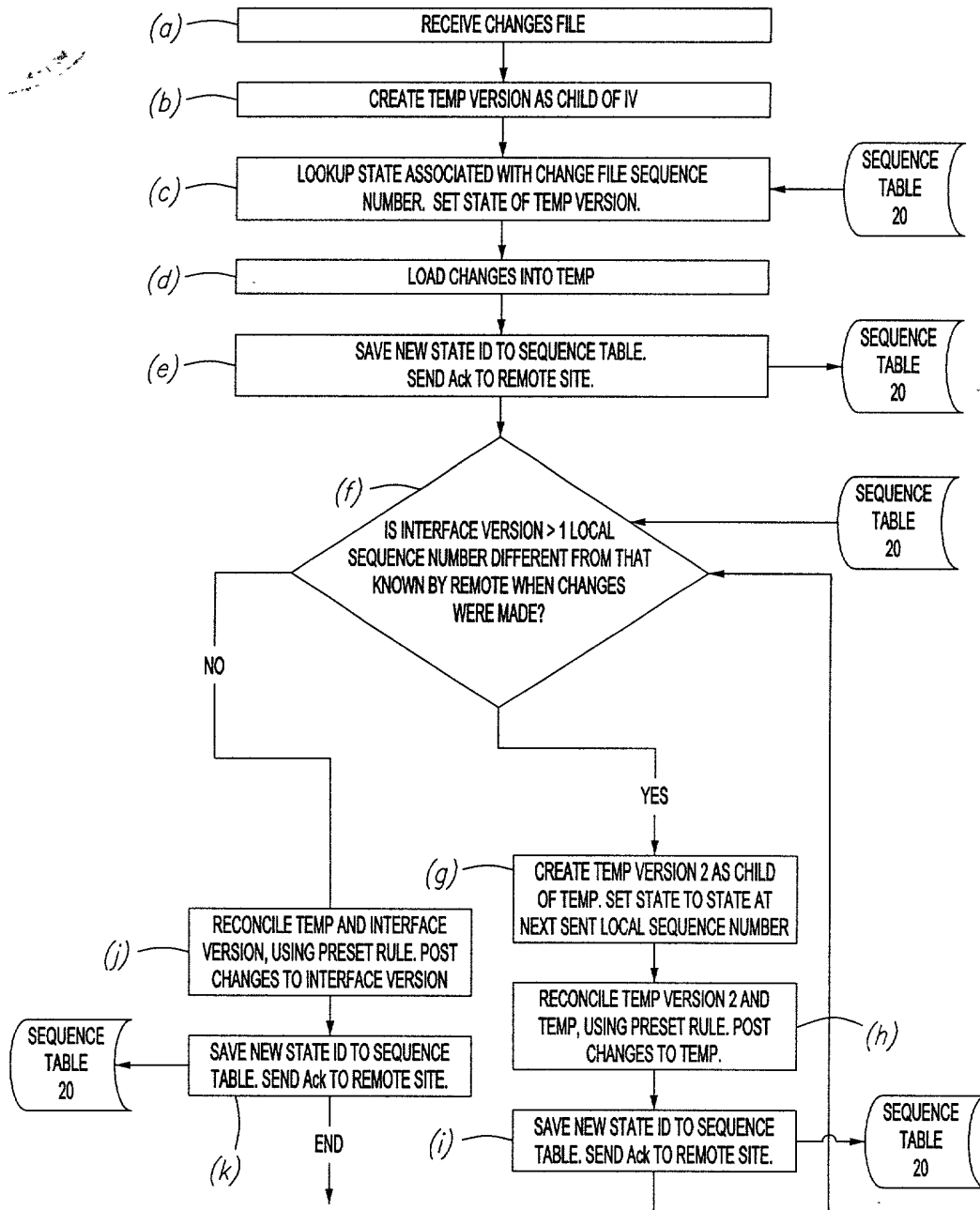


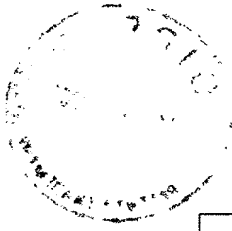
FIG. 4

NUMBER	EVENT	LOCAL SEQ TABLE	VERSIONS & STATE(S)	LOCAL SEQ	REMOTE SEQ	VERSIONS & STATE(S)	REMOTE SEQ TABLE	LOCAL IN Q	REMOTE IN Q
100	START	A,M,51,34	LIV-51	A	M	RIV-34	M,A,34,51		
105	REMOTE MAKES CHANGES, SAVES STATE 35. SENDS CHANGES MARKED N, A, 35, UPDATES SEQ TABLE	A,M,51,34	LIV-51	B	N	RIV-35	M,A,34,51 N,A,35,?	CIN,A,35	
110	LOCAL MAKES CHANGES SAVES STATE 61. SENDS CHANGES MARKED B,M,61, UPDATES SEQ TABLE	A,M,51,34 B,M,61,?	LIV-61	B	N	RIV-35	M,A,34,51 N,A,35,?	CIN,A,101	CB,M,61
115	LOCAL RECEIVES CHANGE FILE A,N,35. CREATES TEMP W/ STATE 51 (by looking up AM in seq table) AND IMPORTS, CRE- ATING STATE 65. SENDS Ack A,N,65. UPDATES SEQ TABLE	A,M,51,34 B,M,61,? A,N,65,35	LIV-61 Temp-65	B	N	RIV-35	M,A,34,51 N,A,35,?		CB,M,61 A,N,65
120									
125	LOCAL RECONCILES TEMP WITH LIV, RESOLVING ANY CONFLICTS USING STANDARD RULES. CREATES STATE 66, CORRESPONDING TO B,N.	A,M,51,34 B,M,61,? A,N,65,35	LIV-61 Temp-66	B	N	RIV-35	M,A,34,51 N,A,35,?		CB,M,61 A,N,65
130	LOCAL POSTS TO LIV. SENDS Ack B,N,66. UPDATES SEQ TABLE IF THERE WERE CONFLICTS. THEN PARKS VERSIONS POINT- ING TO STATES 61 AND 65, TO ALLOW REPLAY OF RECONCILE BY HUMAN AGENT	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,?	LIV-66 Parked-61 Parked-65	B	N	RIV-35	M,A,34,51 N,A,35,?		CB,M,61 A,N,65 A,B,N,66

FIG. 5A

135	REMOTE MAKES CHANGES, SAVES STATE 36, SENDS CHANGES MARKED O, A, 36, UPDATES SEQ TABLE	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36	MA,34,51 NA,35,? OA,36,?	CIO A,36	CBM,61,? AVAN,65 ABN,66
140	REMOTE RECEIVES B,M,61 CREATES TEMP AT STATE 34 (by looking up AM in seq table) AND IMPORTS, CREATING STATE 40. SENDS Ack M,B,40, UPDATES SEQ TABLE	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36 Temp-40	MA,34,51 NA,35,? OA,36,? MB,40,61	CIO A,36 AM,B,40	AVAN,65 ABN,66
145									
150	TOO MANY STEPS BETWEEN M AND O TO RECONCILE DIRECT- LY. REMOTE CREATES Temp2, SETS TO STATE 35 (local sequence N)	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36 Temp-40 Temp2-35	MA,34,51 NA,35,? OA,36,? MB,40,61	CIO A,36 AM,B,40	AVAN,65 ABN,66
155	REMOTE RECONCILES TEMP WITH Temp2, APPLYING CONFLICT RULES, CREATING NEW STATE 41	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36 Temp-40 Temp2-41	MA,34,51 NA,35,? OA,36,? MB,40,61	CIO A,36 AM,B,40	AVAN,65 ABN,66
160	REMOTE POSTS TO TEMP, SENDS Ack N,B,41, UPDATES SEQ TABLE. DELETES Temp2 IF NO CONFLICTS DURING RECONCILE	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36 Temp-41	MA,34,51 NA,35,? OA,36,? MB,40,61 NB,41,?	CIO A,36 AM,B,40 AN,B,41	AVAN,65 ABN,66
165	RIV NOW REFERENCES AO, TEMP REFERENCES BN. ONLY ONE STEP ON EITHER SIDE, SO ALLOWED TO RECONCILE. REMOTE RECONCILES TEMP WITH RIV, CREATING STATE 42.	AM,51,34 BM,61,? AN,65,35 BN,66,?	LIV-66 Parked-61 Parked-65	B	O	RIV-36 Temp-42	MA,34,51 NA,35,? OA,36,? MB,40,61 NB,41,?	CIO A,36 AM,B,40 AN,B,41	AVAN,65 ABN,66

FIG. 5B



	REMOTE POSTS TO RIV, SENDS Ack O,B,42, UPDATES SEQ TABLE, DELETES TEMP IF NO CONFLICTS DURING RECONCILE	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,?	LIV-66 Parked-61 Parked-65	B	0	RIV-42	MA,34,51 NA,35,? OA,36,? MB,40,61 NB,41,? OB,42,?	COA,36 AMB,40 ANB,41 AO,B,42	A,N,65 A,B,N,66
	REMOTE RECEIVES Ack AN65, AND BN66, UPDATES SEQ TABLE	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,?	LIV-66 Parked-61 Parked-65	B	0	RIV-42	MA,34,51 NA,35,65 OA,36,? MB,40,61 NB,41,66 OB,42,?	COA,36 AMB,40 ANB,41 AO,B,42	
	LOCAL RECEIVES CHANGE FILE A,O,36, CREATES TEMP WITH STATE 65 (by looking up AN in seq table) AND IMPORTS, CREATING STATE 70. SENDS Ack A,O,70, UPDATES SEQ TABLE.	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,? A,O,70,36	LIV-66 Parked-61 Parked-65 Temp-70	B	0	RIV-42	MA,34,51 NA,35,65 OA,36,? MB,40,61 NB,41,66 OB,42,?	AMB,40 ANB,41 AO,B,42	A,A,O,70
	LOCAL RECONCILES TEMP WITH LIV, RESOLVING ANY CONFLICTS USING STANDARD RULES. CREATES STATE 71, CORRESPONDING TO B,O.	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,? A,O,70,36	LIV-66 Parked-61 Parked-65 Temp-71	B	0	RIV-42	MA,34,51 NA,35,65 OA,36,? MB,40,61 NB,41,66 OB,42,?	AMB,40 ANB,41 AO,B,42	A,A,O,70
	LOCAL POSTS TO LIV. SENDS Ack B,O,71, UPDATES SEQ TABLE. DELETES TEMP IF NO CONFLICTS.	A,M,51,34 B,M,61,? A,N,65,35 B,N,66,? A,O,70,36 B,O,71,?	LIV-71 Parked-61 Parked-65	B	0	RIV-42	MA,34,51 NA,35,65 OA,36,? MB,40,61 NB,41,66 OB,42,?	AMB,40 ANB,41 AO,B,42	A,A,O,70 A,B,O,71

FIG. 5C

LOCAL RECEIVES ACK FILES MB40, NB41, OB42. UPDATES SEQ TABLE.	AM,51,34 BM,61,40 AN,65,35 BN,66,41 AO,70,36 BO,71,42	LIV-71 Parted-61 Parted-65	B	O	RIV-42	MA,34,51 NA,35,65 OA,36,70 MB,40,61 NB,41,66 OB,42,71	AMB,40 ANB,41 AOB,42	AIA,0,70 AIB,0,71
REMOTE RECEIVES ACK FILES AO70, BO71. UPDATES SEQ TABLE	AM,51,34 BM,61,40 AN,65,35 BN,66,41 AO,70,36 BO,71,42	LIV-71 Parted-61 Parted-65	B	O	RIV-42	MA,34,51 NA,35,65 OA,36,70 MB,40,61 NB,41,66 OB,42,71		

FIG. 5D

VERSIONS AND STATES, 2 DATABASES, PART 1

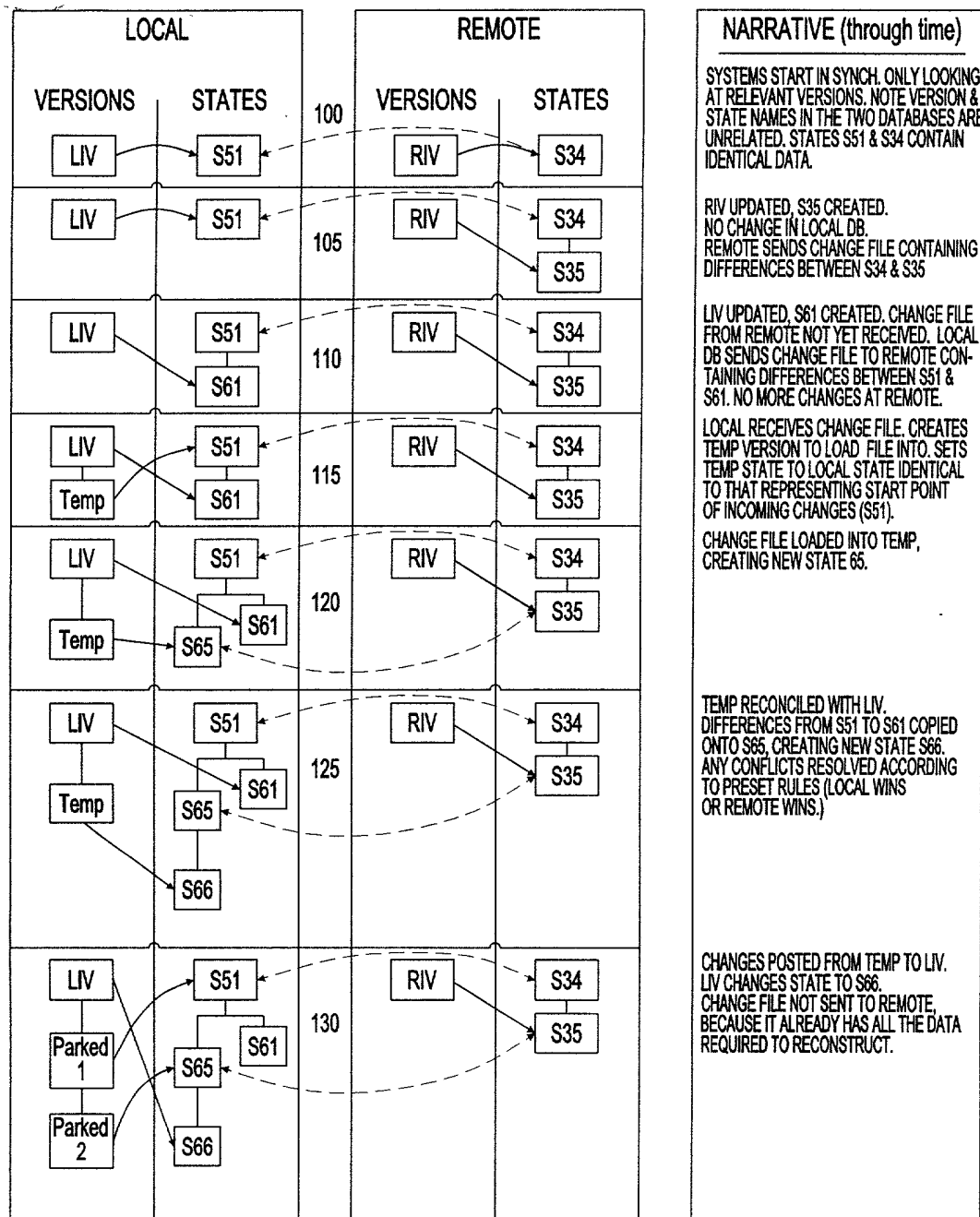


FIG. 6A

VERSIONS AND STATES, 2 DATABASES, PART 2

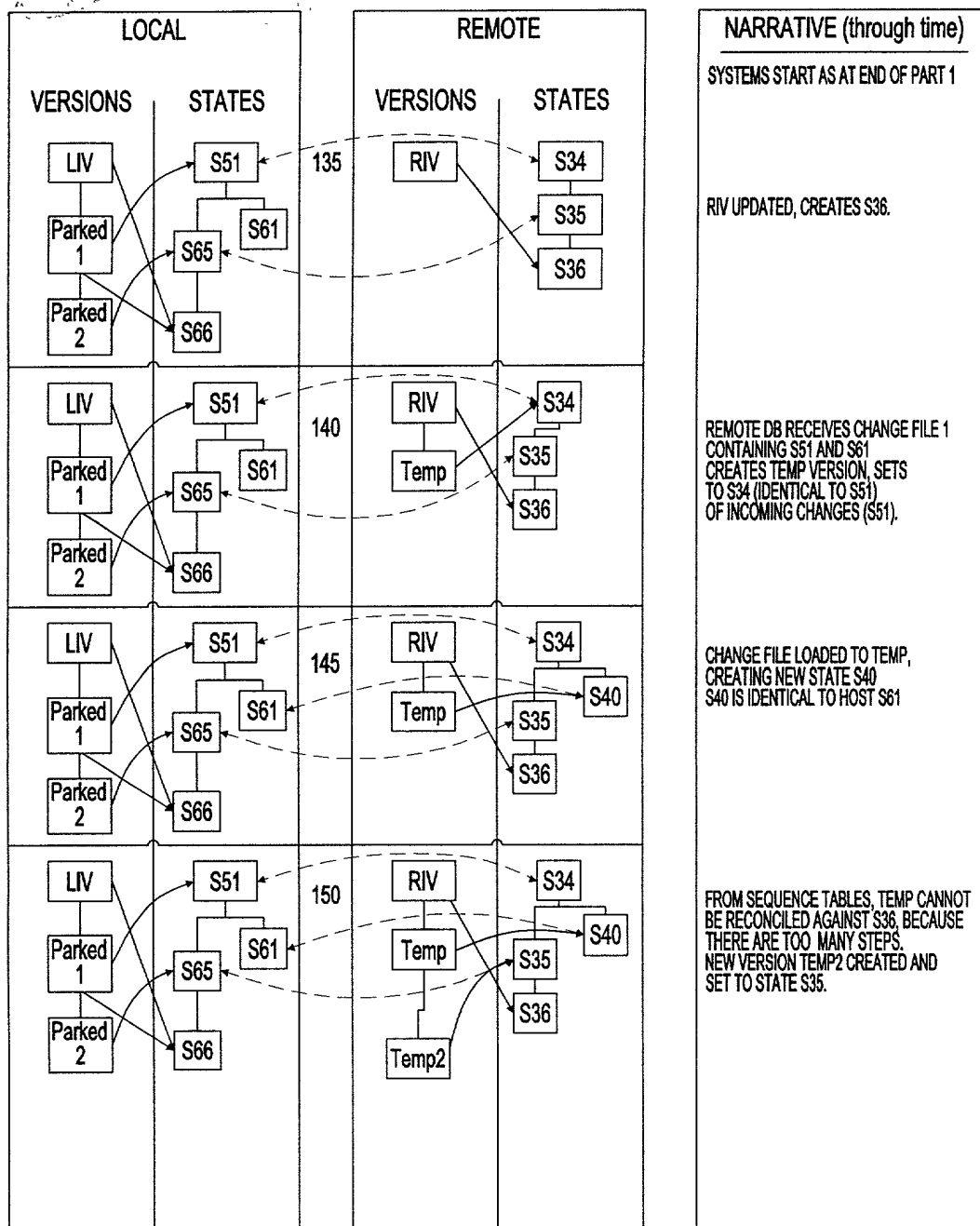


FIG. 6B

VERSIONS AND STATES, 2 DATABASES, PART 3

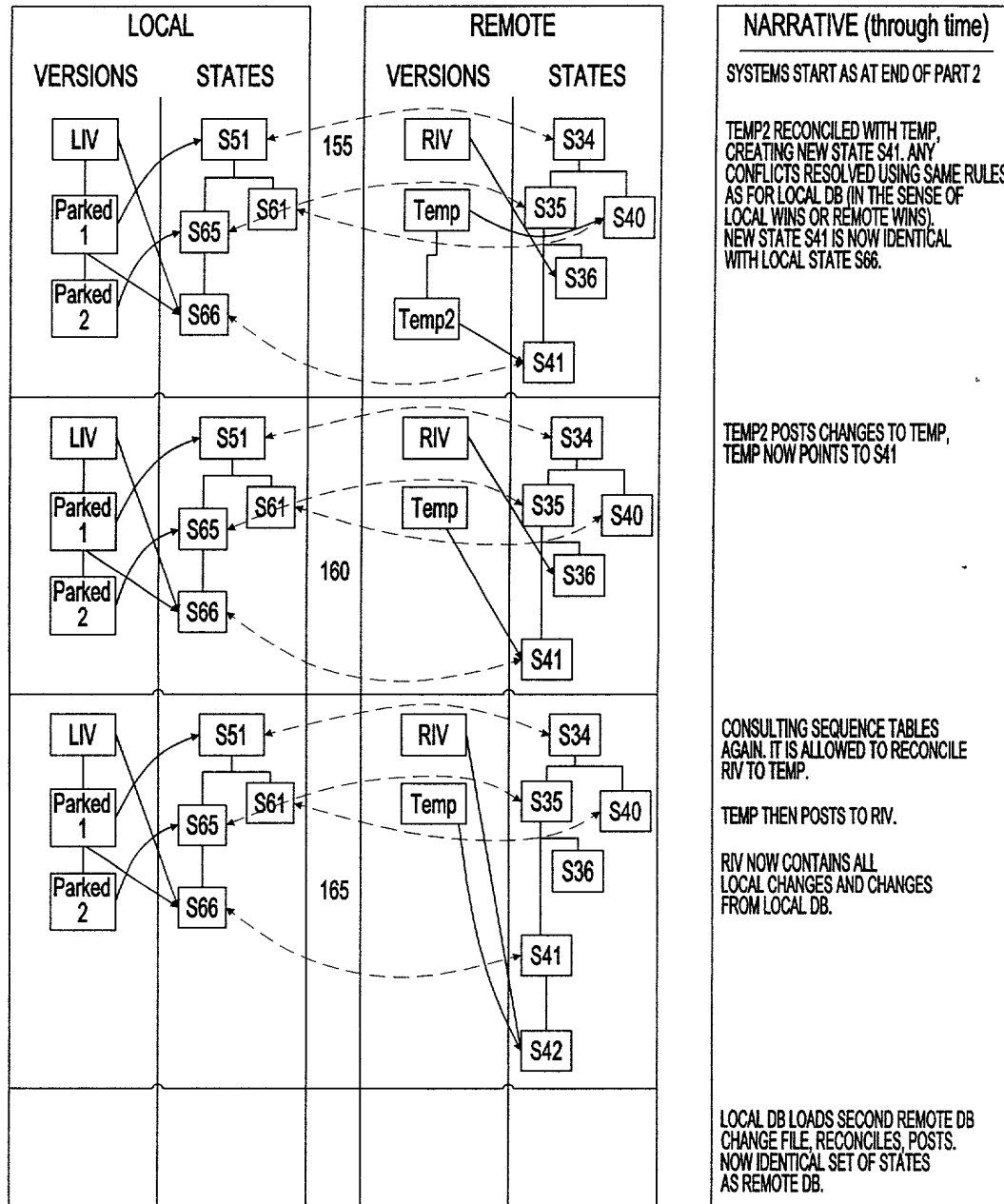


FIG. 6C